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THE INFLUENCE  
OF  
MANUFACTURES,  
PUBLIC IMPROVEMENTS, SCIENCE AND CAPITAL  
ON  
AGRICULTURE:

AN ADDRESS, DELIVERED BY

E. H. DERBY, ESQ.,

AT CONCORD, MASSACHUSETTS, OCTOBER 6TH, 1847.

BEFORE

THE MIDDLESEX SOCIETY OF  
HUSBANDMEN AND MANUFACTURERS.

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## A D D R E S S .

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AGRICULTURE has become essential to life. The forest, the lake, and the ocean, cannot sustain the increasing family of man. Population declines with a declining cultivation, and nations have ceased to be with the extinction of their agriculture.

When harvests are exuberant, joy and health follow in their train; but let delusive prosperity draw industry from agriculture, let an insidious disease attack one of its important products, let an insect or a parasite fasten on a single esculent, and mark the effect upon commerce and human life.

Upon such an event all business is deranged; the commercial marine of the world proves itself unequal to the crisis,—sloops-of-war and frigates become carriers of grain. Warehouses, canals, railroads, and ports cannot meet the exigency; masses of specie flow from the guarded treasuries of the old world to the rude cabins of the prairies; manufactures and public improvements stop in their course. Famine and pestilence invade provinces and states, and the pale survivors, reckless of those ties which bind man to his birth-place, brave storms and shipwreck, sickness and death, on the route to new and untried regions.

A glance at such events, which the present year has witnessed, must impress us with the vast importance of Agriculture, both as an occupation and a science.

Agriculture in ancient times was esteemed and honored. In classic Greece and Rome it was the theme of the popular poets

of the age, and was not deemed unworthy of distinguished warriors and statesmen. We read of Cicero at his Tusculan villa, of Cato at his farm, of Cincinnatus leaving his plough to command the armies of the Republic, while the great naturalist, Pliny, in his beautiful letters, prides himself on his vineyards.

The overflow of the Nile, the fertilizer of Egypt, has been celebrated for centuries as the great festival of the country, and in that "central flowery land" which claims such remote antiquity, the sovereign of three hundred millions, — "the son of heaven, whose person is almost too sacred to be seen, whose imperial despatch is received amid burning incense and prostration, and in whose presence no one dares speak but in a whisper," — annually exhibits himself to his subjects holding a plough in honor of Agriculture.

In England, too, whose nobles shrink from all connexion with trade, Agriculture is highly honored. Earls, dukes, and princes preside at agricultural festivals, compete for prizes, and do not disdain to write treatises on the culture of roots, the rotation of crops, and manufacture of composts. Sir Robert Peel, the great statesman of the age, is one day bearing down by his eloquence the opposition of Parliament to his vigorous and enlightened policy, and another discussing the prospects of Agriculture among the farmers of Tamworth.

It is, too, with mingled pleasure and pride, that we recur to the fact that the hero and statesman who led the armies of our Revolution was himself a practical farmer. Amid all the excitement, harassing duties and embarrassments of a protracted war, he directed by letters the operations of his farm, and finally retired from the highest position to which talent and patriotism could aspire, followed by the love of his countrymen, to devote to Agriculture the close of his life; and it is a little remarkable his example has been followed by nearly all who have succeeded to the office of President.

In view of these facts, may we not ask, has Agriculture enjoyed in New England the prominence and popularity to which it may well aspire; and is the position of the farmer, lord of

the soil here, and but a tenant in the old world, duly appreciated?

It is obvious to the reflecting mind, that the farmer has been affected by depressing influences; but is it not as apparent, that they are ceasing to operate?

Our fathers did not enjoy, as farmers, the privileges which we possess. The country, emerging from a long war, was deficient in capital. Implements and buildings were rude and defective; a few small seaports and fishing towns formed their principal markets, and access to these was by no means easy, for the bridle-path blazed through the forest, the ford and the ferry were but a poor substitute for the county road, the turnpike, canal, and railroad.

At a period, too, when the wars of Europe made us the carriers of the world, it is not astonishing that talent and enterprise should have been drawn from the secluded home of the farmer to the perilous "march upon the deep," to the uncertain pursuits of trade, or to the sharp competition of professional life, growing with the growth of commerce, or be tempted to exchange the rudeness of country life for the enervating refinement of the city.

Temperance, taste and progressive art, education and the weekly press, had not yet gilded the home of the farmer; judicious enterprise had not yet drawn the daughters of New England from the distaff to the water-falls, and enlivened the adjacent districts by the creation of valuable markets. Contrast Massachusetts to-day with Massachusetts half a century since. Counties chequered with factory villages, tied together by a fast-spreading net-work of railroads, sparkling with school-houses, churches, and tasteful residences, and improving farms, and peopled by an intelligent and energetic race; compare these with all that preceded them, and we shall find much to cheer us in the contrast, without detracting in any degree from the courage and patriotism of our progenitors. If, in addition to the progress of the country, we take into account the vast increase of wealth, the advance in the mechanic arts, the dis-

coveries of chemistry, shall we not arrive at the conclusion that Agriculture now presents a *new aspect*, assumes a new importance, and offers new attractions?

Let me invite you, on this occasion, to consider the degree of influence which science and capital may exert upon Agriculture;

To examine some of the effects which the growth of manufactures, commerce, and public improvements, produce upon the agricultural interest;

And to briefly discuss the interests, prospects, and policy of the farmers of Middlesex.

In estimating the importance of science and capital to Agriculture, we learn from the lessons of experience, that a fertile soil alone does not carry agriculture to perfection. Should we seek the spots where agriculture gives the largest and most remunerative returns for a given space, we should find them not on the fertile banks of the Nile or the Ganges, the rich plains and valleys of Sicily, or the prairies of the West, where a virgin soil and low prices attract so many youthful cultivators. Far otherwise. You must look to Flanders and Holland. There science and capital combined, in a harsh climate, have rescued vast wastes from the ocean, and converted sterile marshes and barren sands into productive fields, the very garden of Europe. Or look at England, our parent land, where the same powerful combination has transformed the sandy plains of Norfolk, for centuries abandoned to the rabbit, into luxuriant fields of wheat, clover, and turnips, and changed the fens of Lincolnshire, which encircle the old town of Boston, — fens for centuries the resort of wild ducks, geese, and other birds of passage, — into the *granary* of England.

The soil of Belgium was originally sand and clay alone. It has been enriched by ashes and composts until it has become a rich, black, loamy mould. Tanks are provided on the farms for liquids, and each cow \* is estimated to produce ten tons of

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\* See McCulloch.

solid and twelve of liquid manures. Every expedient is resorted to both to increase their quantity and to improve their quality. Rotations of crops are followed, and the result of these efforts is, that Belgium sustains a population of three hundred and fifty people, sixty-seven cattle, and seventeen horses to the square mile, usually raises her own bread-stuffs, and exports wheat, madder, flax, wool, and bark, to other parts of Europe. In Holland, where the dike, steam engine, and wind-mill are employed to prevent the incursion of the sea upon land gained from its bosom, a population of two hundred and fourteen to the mile is sustained, and large exports made of butter, cheese, and other agricultural products. The average value of land is nearly three hundred dollars per acre, although it is burthened with oppressive taxes.\*

To learn the causes of the astonishing fertility and large returns flowing from these conquests of art over nature, we must recur to the history of Belgium and Holland.

For centuries they have been the seats of commerce and the arts. In the eleventh century, Ghent and Bruges, cities of Belgium, were important commercial towns, and supplied the courts of Europe with silks and tapestries.

In the fifteenth century, Ghent contained fifty thousand weavers, and Bruges and Antwerp had each two hundred thousand people, and were the marts of the civilized world. In the sixteenth century, the harbor of Antwerp often contained two thousand five hundred vessels, her gates were daily entered by five hundred loaded wagons, and her magnificent Exchange, still standing, erected before the discovery of America, was attended twice a day by five thousand merchants.

The country was covered with roads and canals; capital and art were applied to agriculture. The effect of a population growing in numbers and wealth was to stimulate the efforts of those engaged in husbandry, and for six hundred years

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\* Holland annually exports thirty-eight million pounds of cheese, and eighteen million pounds of butter. The average rate of the land-tax on farms is ten to fourteen guilders per arpent, about \$3 per acre.

commerce, manufactures and agriculture grew together until the latter attained the height which has survived the wars and revolutions which nearly prostrated the former.

Holland, too, has been for centuries the seat of manufactures, commerce, and wealth. In the seventeenth century, Holland was the great naval power of the age, and controlled the trade of the Indies. Her shipping, nine hundred thousand tons, equalled that of all the other powers of Europe, and her great cities united together and to the Rhine by canals, the admiration of Europe, were each devoted to some great branch of manufactures or commerce. From these, Agriculture received a mighty impulse.

When England became the queen of the seas and the patron of the arts, when she had invented the steam engine and the spinning jenny and applied her beds of coal to the production of iron, when she had opened her canals and begun to build docks and harbors, a stimulus was given to agriculture, and wealth and science were drawn to districts which had lain dormant for centuries. They were both applied to the improvement of land. Soils were analyzed, tools of all kinds improved, lime and plaster transported by canals to the spots that required them, bone-dust collected from the battle-fields of Europe, from La Plata and California; dikes and drains constructed; oil cake, imported even from our county of Middlesex, to fatten her cattle and enrich her soil; and vessels were sent around Cape Horn to procure the excrement of birds. The produce of agriculture has been thus more than doubled, and her inhabitants carried to an average of three hundred per square mile, consuming food and occupying houses vastly superior to those of their fathers.

England and Wales, with less than sixty thousand square miles of surface, sustain eighteen million people, twenty-six million sheep, four million head of cattle, and one million five hundred thousand horses in a condition unrivalled in any section of the world, and produce annually beside at least two hundred and forty million bushels of bread-stuffs.

The county of Lancashire, the great seat of the cotton manufacture, the Middlesex of England, presents results more striking than those of the island at large. It has increased with a rapidity almost unexampled in the history of industry, and exhibits a population of one million eight hundred thousand, or one thousand to the mile, in a space of but eighteen hundred square miles, an area barely equal to our two counties of Worcester and Middlesex.

Lancashire, like our Middlesex, is studded with factories and covered by a net-work of rail-roads and canals. Its soil, like that of Middlesex, is devoted principally to the culture of grass, fruit, and esculent vegetables, while its bread-stuffs are drawn from other districts.

There would seem to be something congenial to agriculture in the very atmosphere of commerce and manufactures, for we read in the history of Carthage, by its conquerors, that around that ancient seat of trade and manufactures, and under the burning sun of Africa, there were clustered beautiful farms and country seats, canals, olive trees, and vineyards.

The achievements of science and capital in the agriculture of the old world, lead us to appreciate aright their value on this side of the Atlantic, and to take a more correct view of their importance and uses. A few rash experiments here, guided by no practical skill, may have led some to distrust theories and the value of book learning; others have looked with a jaundiced eye on the accumulation of wealth, have regarded its votaries merely as a mercenary race, a class useless to the community, instead of viewing them as stewards accumulating property for the benefit of society; forgetful that their wealth, whether invested in *banks, ships, docks*, or avenues of trade, or in loans upon land, is giving an impulse to the whole country.

To insure the progress of agriculture, it is for science to indicate the path, to suggest the elements of the soil, to point out its deficiencies, and the appropriate remedy; to present the improvements in tools, fences, and buildings, and the discoveries of art; but in vain would she place her finger upon these unless



her ally, capital, should follow and furnish the stocks, tools, structures, and fertilizing substances, and aid in creating avenues from the farm to the market.

There was a time, but few years since, when the credit of our State and Country, now so elevated, was deeply depressed; when the bonds of Massachusetts found no purchasers. Science had planned that great avenue which makes Boston one of the seaports of the West; but means were wanting. By whom, think you, were they furnished? By those unfortunate Irishmen who seek here a refuge from bad laws and national calamities,—who toil upon our public works, and to whom we owe all our canals, wharves, and railroads. The quiet accumulations of these small capitalists in the Savings Bank of Boston absorbed more than half a million of our bonds, and finished the Western Railroad.

The progress of towns, cities, and manufactories, has created wealth, nurtured science, and aided their diffusion. Towns and cities have reacted on the country, have created a demand and liberal price for its products, and furnished it with the means of fertility; while towns and cities may trace their expansion to commerce and the arts.

Commerce and manufactures have been fostered and stimulated by public improvements, which have collected and distributed their materials and products. The alliance thus cemented between the ship, the canal-boat, the car and the spindle, the forge and the plough, has created great and prosperous nations, and verified Lord Bacon's oft-repeated theory, that three things were essential to the prosperity of a country,—fertile fields, busy workshops, and easy communication.

While in England, the Netherlands, and portions of France, Germany, and Italy, all these advantages are enjoyed, there are extensive regions, in which the fertility of nature is neutralized by the want of facilities of intercourse; and, for centuries past, commerce and manufactures, population and agriculture, have languished or receded. When the Council of Castile were invited by an eminent engineer to open a canal

from Madrid to the sea, they declined the invitation, coming to the sage conclusion, that if God had designed a navigable river for Madrid, he would have made it himself; and Spain, estranged from commerce and improvements, has made so little progress, that it has been wittily suggested that were Adam to revisit this sphere, he would find the face of nature less changed, and feel himself more at home in Spain, than in any other region. While in England and the Netherlands the surplus of one district supplies the deficiencies of another, in Spain it is not unusual for one province to be desolated by famine, while an excessive crop in another has filled the granaries to overflowing, and made wheat comparatively worthless.

In Spain, land is stationary or declining with the decay of towns and villages; but near the towns and cities, the canals and railways of the flourishing regions we have described, land rises in value with the improvement of cultivation, with the increased prices for its products, and with the progressive demand for sites for warehouses and country seats. It is enriched by its very vicinity to the centres of population, by the fertilizing materials it derives from them, whose weight and bulk forbid their carriage into remote districts of the country. In this respect lands in populous districts have a decided and preponderating advantage over those of the interior.

The progress of improvements and the growth of towns in the United States are producing the same effects we have witnessed in Europe.

The Erie and Champlain Canals, with the application of steam to the Hudson, have created in the last twenty years great cities at *Buffalo*, *Rochester*, *Utica*, *Albany*, *Troy*, and *Brooklyn*, and made New York the third, if not the second commercial city of the world.

Singular as it may seem, many influential residents in the city of New York long opposed the Erie Canal; her leading editors ridiculed the "big ditch" of Clinton, unable to distinguish, through the dim vista of the future, the stately warehouses, palaces and churches, elegant avenues, and the forests

of masts, with which it was to embellish the island of Manhattan.

Orange and Dutchess counties anticipated that the wheat and dairy produce of the Genesee valley would depress their farms, although more contiguous to the market of New York. On Long Island, a gentleman of my acquaintance attended an election where his friend, the successful candidate, was chosen on the ground of his opposition to the canal.

But the farms of Orange and Dutchess still maintain their ascendancy, and such was the impulse given to Long Island by the growth of New York after the Erie Canal had opened, such the increased demand for corn, hay, fuel, poultry, and other produce, that my acquaintance, on a second visit, found his friend again a candidate on the ground that he had become a warm supporter of the Erie Canal.

If canals have contributed to such results on both sides of the Atlantic, what is it reasonable to expect from the discovery of railroads, an improvement rapidly superseding the "ne plus ultra" of the preceding age?

The same power which draws a ton upon a turnpike, draws fifteen upon a level railroad, and with fourfold the speed. The railroad combines the properties of the coach, the wagon, and the race-horse. With sixfold the speed of the canal, it regards not the snows of winter, and scales mountains impervious to canals. How far is it essential to our seaports and factories? They require a constant and uninterrupted communication, which canals cannot give, as the ice closes them nearly half the year.

What do factories require? The cotton and wool of distant states and countries; the iron and coal of Pennsylvania and Cape Breton; the lumber and lime of Maine; the indigo and drugs of India; the oil of the Pacific and of Africa; and the factory girls of all New England. Obliterate the railroads, and would their business be worth pursuing?

Obliterate the railroads, and would not half of Boston go to decay?

At the commencement of the railroad system in New England, some fears were entertained, that the effect might be injurious to the farms which encircle our metropolis.

This opinion was countenanced for a brief period by the competition of the new milk-farms along the line of the Boston and Worcester Railroad with the dairies in the suburbs, and by the depression of agricultural products through the country which followed the commercial revulsion of 1837.

Doubtless some changes were effected; but have not the suburban dairy farms been required for building lots at treble prices? Are not the streets of the metropolis extended far into the country on seven great lines, and is not land sold by the foot more than ten miles distant from the Merchants' Exchange of Boston? And are not farms once supposed to be ruined by the location of railroads, like the Winship and Hunnewell estates in Brighton and Newton, at least quadrupled in their value? Have they not shown that the railroad is by no means the road to ruin? Do not milk, butter, corn, oats, pork, beef command remunerating prices, the latter in particular, and when you cannot buy a surloin in the Quincy Market under a shilling a pound. If, occasionally, produce from the interior competes in our market with that of farms in the vicinity, does it effect more than a change of use, or of the course of cultivation, and does not the increased size of the market draw in the market wagon from a larger circle? Or if any temporary depression occurs, are not farms in the outskirts of the counties around Boston, more elevated than the adjacent farms are depressed?

What would be the position of the farms around Boston to-day, if our railroad and inland marts had no existence, — were we to banish the hundred millions of wealth and the one hundred thousand people which have accumulated in and around Boston since the first movement in railroads, and send them to New York and New Orleans, where they would have been planted, if such movement had not been made?

Do the one million of tons moved annually by the railroads

out of Boston, doubling once in four years, give no impulse to industry in and around the city, or do these great works of amelioration, which bear industry, the only marketable commodity of the poor man, to the best theatre for its exercise, give no increased value to industry itself?

Does not every house erected in and around the city, and every ship added to its rolls, require nearly an acre of land to supply its immediate demands, and is not every such house and ship a market? And are not every drain, vault, and chimney, a source of fertility? Are, or are not, the effects which attend the progress of the railroads of Massachusetts, injurious or beneficial to the county of Middlesex, and what are its position and prospects with reference to agriculture? \*

Our county of Middlesex embraces an area of eight hundred square miles, and its population, rapidly increasing since the census of 1840, may now be safely estimated at 120,000, or one hundred and fifty to the square mile.

The surface presents no high mountains or deep valleys; but, diversified by hill and dale, meadow and plain, and watered by four large rivers, the Merrimac, Nashua, Concord, and Charles, offers numerous waterfalls, and sites for manufactories.

Although modern art has, to a great extent, superseded human labor, the constant progress of manufactures in Middlesex creates a demand for operatives far exceeding the home supply. Prolific as the county may be in one branch of production, that of boys and girls, all New England, and even New York, Nova Scotia, and Canada, have contributed to its supply. More than twenty-six thousand operatives are now assembled in Middlesex

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\* The effect of railroads, thus far, appears to be to ameliorate the condition of those residing at a distance from seaports, and to elevate the value of their farms and products, without depressing property nearer to the great markets. The increased resources of the interior are illustrated by the fact, that in August last nearly three millions were subscribed in the country for a short railroad from Manchester to Lawrence, while it took nearly twenty years, half a century since, to raise three quarters of a million to construct the Middlesex Canal.

from that wide region which lies between the Hudson, the St. Lawrence, and the sea.

The annual produce of their industry appears in the cottons and woollens of Lowell, Waltham, Dracut, Billerica, Shirley, and Framingham; in the ships of Medford; the lead of Concord; the soap, candles, and glass of Cambridge; the cabinet-ware and leather of Charlestown, Woburn, and Reading; the paper of Newton and Pepperell; the boots and shoes of Natick, Holliston, Hopkinton, Stoneham, South Reading, and Malden, and the varied manufactures of many other flourishing towns.

In manufactures, Middlesex annually produces *twenty-three millions of dollars*; and is, in this great department of industry, the leading county of the State and of the Union.

The annual products and manufactures in this single county are more than double the average exportation of bread-stuffs, from the whole Union, and would pay for more than a moiety of all the flour, grain, and corn exported during the season of famine. Rapid as has been the improvement of agriculture, and wide as has been its expansion in new counties and states during the last twenty years, the advance of manufactures has been quite as rapid; and, if there be truth in the remark of a great *British* statesman, that every loom stopped in England stops a dozen ploughs, how many American ploughs have the looms of Middlesex set in motion?

The county of Middlesex is alike distinguished by railroad enterprise. It is the great railroad county of the state, being intersected by the four inland lines from Boston to New York, Vermont, New Hampshire, and Maine, besides various cross routes and branches.

The lines already constructed or chartered in this county, and sure to be finished, exceed two hundred miles in length, furnishing one mile of rails for less than four square miles of surface.

So numerous have these lines become, that the average distance between them does not exceed four miles, and the popu-

lation of the county live within an *average* distance of *one mile* from the iron way.

The combined effect of manufactures and railroads has been to furnish Middlesex with numerous markets. Within its area are the three cities of Lowell, Charlestown, and Cambridge, of recent growth, with an aggregate population of sixty thousand, and at least a dozen towns, with a population varying from two to five thousand each.

Close to its borders are the embryo cities of Lawrence, Fitchburg, and Nashua. Even Assabet, too, gives promise of a future city, near the spot we occupy; while Boston, the populous and wealthy capital of New England, touches the southeastern angle of the county.

With such markets and facilities for communication, which nearly equal those of the most prosperous districts of Europe, and are surpassed by none in America, what are the *agricultural products* of Middlesex, and how far are they capable of expansion?

Their aggregate amount, by the census of 1845, is but two millions three hundred thousand dollars, an amount large in itself, and yet but one tenth of the produce of its manufactures. And may we not safely infer from this disparity, if from no other obvious facts, that the agricultural resources of the county are not yet fully developed; and that when developed, the markets of the county will require a vast amount of products

\* Prices in markets of Boston, Mass., and Liverpool, England, in 1847, in American currency:—

<i>Boston, October 16.</i>			<i>Liverpool, Sept. 11.</i>	
Beef, per pound,	6 to 15	cents	12 to 16	cents
Mutton, “	8 to 14	“	12 to 15	“
Fresh Butter, “	18 to 28	“	28 to 30	“
Fowls, per pair,	75 to 125	“	72 to 84	“
Turkeys, each,	110 to 125	“	108	“
Potatoes, per bsl.,	70 to 80	“	48 to 56	“ for 60 lbs
Old Hay, for 100 lbs,			85 to 100	“
New do. “	75 to 85	“	70 to 85	“
Salmon, per ponnd,			20 to 24	“
Eggs, per dozen,	17 to 18	“	14 to 16	“

not raised within its limits, and furnish an overplus of clothing and other manufactures, which may with advantage be applied to their purchase.

If we scan the agricultural returns of Middlesex for the year 1845, we find its stock as follows : —

34,728 head of cattle, or 43 to the square mile.

9,776 “ horses, or 12 “ “

4,428 “ sheep, or 6 “ “

Let us contrast these returns with those from England and Wales.

This highly cultivated country exhibits, in an area of less than sixty thousand square miles,

4,000,000 cattle, or 67 to the square mile.

1,500,000 horses, or 25 “ “

26,000,000 sheep, or 450 “ “

If we reduce these to one standard, it must be apparent that Middlesex, with all her improvements, does not sustain one half the amount of stock to the square mile, which is reared by England and Wales.

While we concede to England and Wales some superiority in soil over Middlesex, we must not forget there are barren mountains both in Wales and the northern districts of England, that a vast extent is there devoted to wheat and barley, to preserves for game and ornamental parks, and may we not, then, safely infer that our county is competent, under improved husbandry, to double or treble its stock of animals ?

What are the cereal and vegetable products of Middlesex ? The census of 1845 apprizes us, that Middlesex produces in round numbers,

427,000 bushels of corn and grain, worth	\$264,000
2,174,000 “ of esculent vegetables and fruit,	554,000
78,000 tons of hay, . . . . .	777,000
Milk, valued at . . . . .	153,000
Butter, “ . . . . .	163,000

<i>Amount carried over,</i>	<b>\$1,911,000</b>
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<i>Amount brought over,</i>	\$1,911,000
Cheese, eggs, poultry, honey, berries, &c., .	34,000
Stock sold, estimated as in England at one fourth of the whole, . . . . .	216,000
Wood and charcoal, products of forests, .	187,000
	<hr/>
	\$2,348,000

May we not anticipate, from improved husbandry, the increase of cattle and consequent growth of manures, a large increase in the amount of some of these productions?

The tables to which I have adverted, gleaned with much care from the census of 1845, are fraught with interest to the farmer of Middlesex. Let us glance at some of the varied lessons which they teach him.

First. That the principal products of his industry, vegetables, fruit, hay, milk, and fuel, or nearly three fourths of the whole, are of such perishable or bulky character as not to admit of easy transportation to his market towns from the remote interior.

His close vicinity to the market enables him to supply it with the least cost, to avail of the highest prices, and to carry back to his farm a return load of enriching substances, while the farmer of the remote interior would find his profits in a great measure absorbed in the cost of compressing of hay, the deterioration of milk and vegetables, and the increased expenses of conveying all to market. This advantage adds to the value of a Middlesex farm, and holds out to the Middlesex farmer a strong incentive to exertion.

Second. These tables teach us that nature has peculiarly adapted Middlesex for those bulky products which are most appropriate for its position.

While it is prolific in fruits, roots, fuel, grass, and milk, its supplies of grain, corn, pork, wool, butter and cheese, which admit of transportation from a distance, for the product of acres may be compressed into a single car, are moderate in the extreme. Middlesex plies at least 400,000 spindles. She raises not one pound of cotton. Her 4,428 sheep would not supply

her spindles with wool for a day, nor furnish her population with one annual dinner of lamb and another of mutton. Her sheep, too, are annually diminishing, giving place to milch cows and cultivation, and she must depend on the interior for both wool and mutton, both indispensable to her comfort and prosperity.

Third. With respect to breadstuffs, Middlesex produces annually but 427,000 bushels of wheat, corn, rye, oats, barley, and buckwheat, not one third enough to supply her own population, to say nothing of her adjacent markets. Her whole annual production will barely suffice to give each *horse* in the county half a peck of corn per day for his sustenance, and no generous or judicious farmer can think of allowing less. The annual wheat crop of Middlesex, but 1,952 bushels, would provide but one treat of dough-nuts for the good people of the county, and all the pork we can afford to raise will scarcely suffice to fry them and dress those fresh codfish, mackerel and halibut, which Providence has placed around our shores, but denied to the prolific regions of the West.

For pork and breadstuffs, and I may add for butter and cheese, as the railroads are converting all Middlesex into a milk-farm, the county is dependent on the remote interior.

Let us glance for a moment at a single county of the West, about two thirds the size of Middlesex. The county of Genesee, N. Y., by the census of 1840, exhibits 1,940,000 bushels grain and corn, 154,000 sheep, and 49,000 swine. As a Middlesex farmer, I see nothing to regret in this excess, or to tempt me to exchange my acres in Middlesex for as many or more in Genesee. Nature has bestowed different blessings on different sections of the Union. If at the West she has placed her layers of limestone beneath a fertile soil, and adapted it to wheat and corn, or spread her beech-nut forests over the hills to furnish mast for the swine, and created pastures congenial to the sheep, she has placed us near the ocean, the great highway of nations; she has shaped out ports and harbors for commerce; rivers to impel spindles; has clad our rocky hills with forests suitable for timber or fuel; and if she has planted boulders in

our fields, a market exists for them in the wells, cellars and walls of our growing towns and cities ; she has given us land, which enlightened industry will adapt to our position, and endowed us, I trust, with sufficient energy to make it available.

Within the last twenty years, agriculture has made great advances in Middlesex ; meadows have been reclaimed ; drains have been opened ; beautiful orchards have been planted ; tasteful cottages, improved houses and barns been constructed ; the races of animals have been improved ; the sources of fertility have been guarded ; land more highly cultivated ; and the Society I have the honor to address, has, no doubt, contributed to the progress of agriculture.

But why should not further and more rapid progress be made, and why should not Middlesex present as bright an aspect as the most productive counties of England ? Why should we not become the pattern county in agriculture as well as manufactures ? We have markets for our produce nearly if not quite equal to those of England. The price of *hay, straw, milk and vegetables* here, is quite as high as the average prices of England. In Indian corn with its masses of fodder, which will not ripen in England, we have decided advantages. In the apple, congenial to our soil, but which does not attain perfection in England, we are also before her.

In addition to all this, every frugal and industrious man may here own his farm in fee, is free from the burthen of feudal tenures, from oppressive taxes and poor-rates, and may worship God, educate his children, and vote according to his conscience, a privilege not always accorded to the English tenant.

If our land be less fertile than the soil of Illinois or Wisconsin, the crop is not absorbed in the cost of transporting to market, and we have no occasion to dread the fever and ague. If our climate is harsh, the wind from the ocean invigorates and animates our frames, and our wives are not saddened in the rude cabin of the lone prairie by the remembrance of an early home. Here we have intelligence, science, capital, and the arts of life. Around us are schools and seminaries of learning

for our children, and in our midst is that venerable institution, Harvard University, the mother of piety and learning, nourished by the beneficence of the honored dead.

And Middlesex, too, has one living son, who defers not his munificence until wealth loses its value, until the candle of life flickers in its socket; who, amid a career of usefulness and honor, which has signally advanced the great interests of the county, devotes a fortune to the advancement of the arts. Middlesex will alike appreciate and enjoy the noble donation of Lawrence to found a school for the practical sciences, to create engineers, miners, machinists, and scientific farmers; "to form ingenious heads, that shall guide the hard hands ever ready to toil on her hard materials."

But, while the farmer of Middlesex enjoys these advantages and incentives to exertion, does not much still remain for him to accomplish? Do we not occasionally see half-tilled fields where the plough has barely skimmed over the surface, and little or no aid has been given to nature? Does not the waving grain, by its light and unfilled heads, sometimes indicate the deficiencies of the sower? Do not some mowing-fields, brown with their unprofitable herbage and chequered with white weed, mourn the absence of plaster, compost, or ashes. And when we reflect that a single acre of enriched pasture is competent to maintain a cow, is not our sympathy often excited for that useful and most respectable animal, as well as for her neglectful owner, when we see her threading her weary way through barren acres, where not a single blossom of white clover perfumes the air, now roving through alder swamps, now climbing hills covered with birches or brambles, at times lost amongst the thicket, and recognized only by the tinkling bell?

Again, let me ask, is not the county studded with deep *meadows* and *swamps*, where the leaves and decaying vegetables of the country, swept down from the hills and plains by rain, have accumulated for centuries, where the sounding-rod discovers the trunks of trees at the depth of twenty or thirty feet below the surface; are not these mines of vegetable mould for

enriching the upland? may they not be converted into luxuriant grass-fields and pastures, almost insensible to drought, and enduring in their fertility?

Are there not rocky hills, which have been wastefully denuded of wood, unfit for cultivation, where the forest should again be tempted to rise, since it flourishes among ledges and rocks, twining its roots around them, and drawing potash from the decomposing granite? Would not such transition from a waste of rocks to wood-crowned eminences embellish the county as well as provide timber and fuel?

Is not the importance of this apparent, when we consider the inducements offered by groves for country seats, and remember the high prices of ship-timber during a season in which a single white oak of Middlesex has produced one hundred dollars for timber? Neither must we forget that the locomotives which will traverse the county when the railroads which are now chartered are finished, will require the annual produce of at least forty thousand acres of forest.

May not our nurseries and orchards be extended, and new varieties of fruit be introduced, and all our lands be more highly cultivated, with increased profit to the husbandman?

Are not the sewers and drains of our towns often suffered to run to waste, when thousands of acres might be fertilized by their contents, and are not hundreds of tons of oil cake, bones, and ashes, annually shipped from the county to enrich distant shores, which could be used profitably at home? These are questions which demand the consideration of the Middlesex farmer.

If he can solve these problems aright, if he can justly appreciate and avail of his position, if he will endeavor to improve it instead of complaining of the competition of those who can best furnish what he cannot well supply, if he possesses that generous spirit which delights to see others prosper while he prospers himself, a Middlesex farm offers a suitable field for his exertions.

Does he aim at a life useful and beneficial to his race, let him

remember that every acre that he reclaims, every blade of grass that he bids to grow where none grew before, ameliorates the condition of his fellows.

Does he aspire to wealth, let him reflect that his gains, if less brilliant and striking than those of trade and the professions, are more certain and uniform; and that the gradual improvement of his estate, and the silent but continued rise in the value of property promise eventual prosperity.

Is he tasteful, he will here find a theatre for taste in woods, orchards, and flowers, and the design of his buildings.

Is he ambitious, here are obstacles to be surmounted, subjects to be controlled, races to be improved; a kingdom in miniature, to be governed by wise and wholesome regulations.

Is there anything warlike in his composition, let him bury his steel in the boulders, and shatter the rocks that deform his grounds, with gunpowder.

Would he make conquests and achieve victories, here weeds and water are enemies; here uncultivated plains are his Mexico, and deep fens and morasses his Texas and California, and no philanthropist or easuist will complain of his conquests should he subdue them. Let him guard against the ambush of the crow, the wire-worm, the squirrel, and the fox, and repel the invasion of the blight, the white-weed, and the sorrel;—he shall see his battle-fields not stained with blood, but blossoming with clover; and when, in his green old age, he points out to his children his Palo Alto, Buena Vista, Cerro Gordo and Cherubuseo, and recounts his *bloodless* achievements, he shall feel greater satisfaction than if his victories had been saddened by the sacrifices and tears of thousands.